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# NIAGARA FALLS

# WATER TREATMENT PLANT

# DRINKING WATER SURVEILLANCE PROGRAM

# ANNUAL REPORT - 1986

MAY, 1987

Ontario
Ministry of the Environment

J. Bishop, Director
Water Resources Branch

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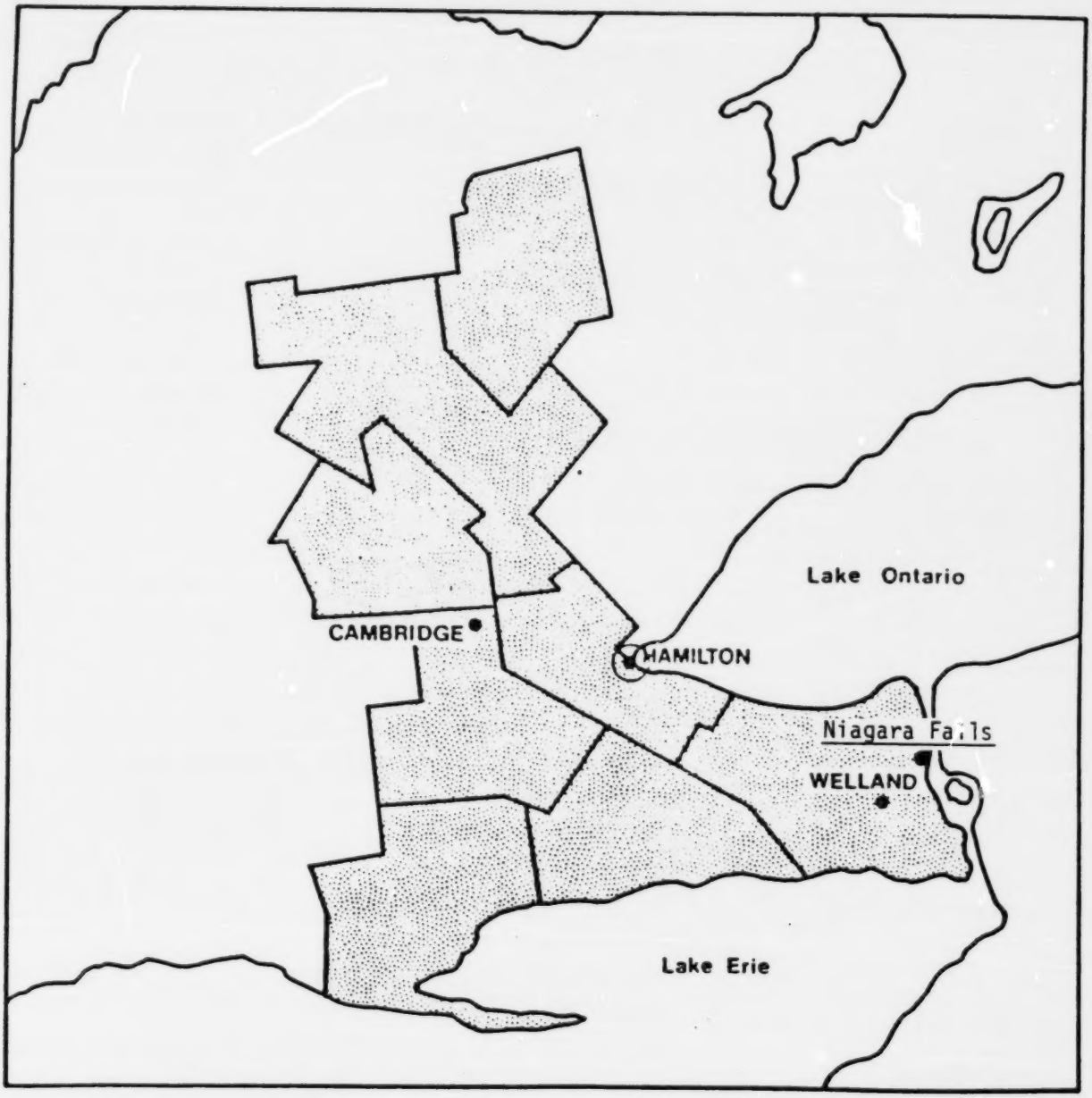
ONTARIO MINISTRY OF THE ENVIRONMENT

# West Central Region



# NIAGARA FALLS WATER TREATMENT PLANT

| | |
|---|---|
| Location: | 3599 Macklem Street<br>Niagara Falls, Ontario<br>L2G 6C7<br>(416-295-4831) |
| Source: | Niagara River via the Welland River Channel |
| Design Capacity: | 145.5 1000 M3/day |
| Operation: | Municipal |
| Plant Superintendent: | H. Hodgson |
| Ministry Region: | West Central Region<br>Welland District Office<br>637-641 Niagara Street North<br>Welland, Ontario<br>L3C 1L9<br>(416-384-9896) |
| Municipalities Served: | City of Niagara Falls (Chippawa) (68,425)<br>Part of Town of Niagara-on-the-Lake (275) |
| Treatment Type: | Physical and chemical treatment consisting of screening, coagulation, flocculation, sedimentation and filtration, (conventional) and disinfection as well as taste and odour control when required. |
| Chemicals Used: | Prechlorination - chlorine<br>Coagulation - alum liquid<br>Post chlorination - chlorine<br>Taste & odour control - powdered activated carbon |

# NIAGARA FALLS WATER TREATMENT PLANT

## EXECUTIVE SUMMARY
## DRINKING WATER SURVEILLANCE PROGRAM, 1986

The Niagara Falls Water Treatment Plant was sampled 15 times in 1986; results are given for raw and treated samples.

The parameters analyzed fall into several categories: physical parameters and general chemistry, bacterial parameters, metals, and organic substances including volatile and chloroaromatic substances and pesticides.

The discussion of results focuses on health-related parameters found in treated water:

(a) **Organic Substances**

Analysis was carried out for approximately 110 organic compounds. The only volatile compounds found, trihalomethanes (THMs) were always present in treated waters; the highest level recorded for total THMs was 48 ug/L.

None of the pesticides analyzed for was found in treated water.

No chlorophenolic or chloroaromatic compounds were found.

(b) **Other Parameters**

The aesthetic ODWO* for organic nitrogen was exceeded in eight treated water samples. Of the other physical, general chemistry and microbiological parameters and metals analyzed, for which there are health-related ODWO, none exceeded the objectives, in treated water.

The results of these analyses are consistent with those obtained in other areas of the Great Lakes.

**The treated water from the supply did not exceed any known health-related guidelines for organic substances applicable to drinking water.**

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* The Ontario Drinking Water Objectives, revised 1983.

## NIAGARA FALLS WATER TREATMENT PLANT

### SUMMARY TABLE OF RESULTS
### DRINKING WATER SURVEILLANCE PROGRAM, 1986

The Niagara Falls Water Treatment Plant was sampled 15 times in 1986.

| PARAMETER CATEGORY | TYPE OF SAMPLE RAW | TREATED* |
|---|---|---|
| 1. GENERAL CHEMISTRY - includes anions such as sulphate, field analyses such as chlorine residual and physical parameters such as colour. | | |
| Total number of parameters in category: 21 | | |
| - Total number of analyses completed | 261 | 270 |
| - Total number of positive results | 229 | 190 |
| - **Number of times guidelines exceeded** | **N/A** | **8** |
| Guidelines exceeded - aesthetic ODWO** for organic nitrogen (8) | | |
| 2. METALS - includes metals such as copper and lead. | | |
| Total number of parameters in category: 24 | | |
| - Total number of analyses completed | 321 | 321 |
| - Total number of positive results | 162 | 150 |
| - **Number of times guidelines exceeded** | **N/A** | **0** |
| 3. BACTERIOLOGY - includes bacteria such as coliforms. | | |
| Total number of parameters in category: 5 | | |
| - Total number of analyses completed | 58 | 60 |
| - Total number of positive results | 56 | 17 |
| - **Number of times guidelines exceeded** | **N/A** | **0** |
| 4. VOLATILES - includes compounds such as benzene and toluene; also included in this category are trihalomethanes (5 parameters), acknowledged to be produced during water treatment. | | |
| Total number of parameters in category: 29 | | |
| - Total number of analyses completed | 419 | 418 |
| - Total number of positive results | 0 | 60 |
| - **Number of times guidelines exceeded** | **N/A** | **0** |
| 5. PESTICIDES - | | |
| Total number of parameters possible in category: 65 | | |
| - Total number of analyses completed | 516 | 516 |
| - Total number of positive results | 1 | 0 |
| - **Number of times guidelines exceeded** | **N/A** | **0** |
| 6. CHLOROAROMATICS AND CHLOROPHENOLS - includes a range of chlorinated organic compounds. | | |
| Total number of parameters possible in category: 19 | | |
| - Total number of analyses completed | 213 | 212 |
| - Total number of positive results | 0 | 0 |
| - **Number of times guidelines exceeded** | **N/A** | **0** |

* Total number of analyses completed will not always equal the number of parameters analyzed for multiplied by number of times the supply was sampled, because of accidents during shipping or analyses or analytical difficulties.

** Ontario Drinking Water Objective.

## DRINKING WATER SURVEILLANCE PROGRAM

The Drinking Water Surveillance Program (DWSP) for Ontario is a computerized drinking water information system. The objectives of this program are to provide:

- immediate, reliable, current information on drinking water quality,
- a flagging mechanism for 'Objective' exceedence,
- a definition of contaminant levels and trends,
- a comprehensive background for remedial action,
- a framework for assessment of new contaminants,
- an indication of treatment efficiency of plant processes.

### Program

The DWSP began in April 1986 and is designed to eventually include all municipal water supplies in Ontario. Water supply locations have been prioritized for surveillance, based primarily on such criteria as population density, probability of contamination and geographical location.

Once the data base becomes established, an assessment of monitoring requirements for the future will be made; monitoring will be continued at the initial locations at an appropriate level and further locations will be phased on to the program as resources permit. It is

estimated that after 4 years of operation, the program will be monitoring 90 locations.

A major goal of the program is to collect valid water quality data, in context with plant operation characteristics in the plant at the time of sampling.

Assessments are carried out at all locations prior to sampling in order to acquire full plant process and distribution system details, and to designate (and retrofit if necessary) all sampling systems and locations.

Samples are taken of the raw (ambient water quality) and treated water at the treatment plants, and also in the distribution systems. In order to determine possible effects of distribution on water quality, both standing and flowing water in old and new sections of the distribution system are sampled. Sampling is carried out by Ministry of the Environment (MOE) Regional staff and/or Municipal personnel who have been trained in the applicable procedures. Comprehensive sampling kits and documented sampling procedures are made available to samplers. This ensures that samples are taken and shipped according to standard protocols and that field testing will supply reliable data. All analyses are carried out using approved documented procedures.

**Data Reporting Mechanism**

Final analytical results are usually received by the DWSP reporting system within 6 weeks of the time of sampling. At this time, printouts of the completed analyses are sent to the MOE District Officer and the appropriate MOE regional office, and are also retained by the DWSP co-ordinator. The DWSP is able to monitor analysis results and assess trends. Should the level of

a contaminant exceed a health-related Ontario Drinking Water Objective, action is required as outlined in the publication, Ontario Drinking Water Objectives.* The DWSP issues an "Action Alert" which notifies appropriate MOE and health authorities, and supplies a history of the occurrence of the contaminant in the water supply system concerned.

**Parameters Analyzed**

About one hundred and forty (140) different parameters are routinely measured on DWSP covering microbiological, organic and inorganic substances of concern, as well as process parameters.

Parameters included in the program are based on the following criteria:

- probability that the substance has the potential to cause problems (health-related or aesthetic);
- probability of occurrence in ambient water;
- availability of routine analytical and sampling methods for monitoring and control purposes;
- feasibility of control.

The range of parameters includes those having Ontario Drinking Water Objectives (ODWO), World Health Organization Drinking Water Guideline values, or other

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* Ontario Drinking Water Objectives, revised 1983, published by the Ontario Ministry of the Environment.

jurisdiction's drinking water objectives (e.g. State of California) as well as compounds of concern to other agencies such as the International Joint Commission, and U.S. Environmental Protection Agency.

The parameters monitored routinely during 1986 are shown in Table 1; this table also includes available guidelines which are appropriate for drinking water, and the analytical detection limit (the lowest concentration that can be detected by laboratory analysis) for each parameter.

Analyses for additional pesticides may be included on certain sampling dates; such additional pesticides are selected from the list shown in Table 1A. These analyses may be done on a seasonal basis, in response to an identified concern or because of a potential for occurrence in certain locations. Seasonal analyses for specified additional pesticides are normally carried out at times corresponding to maximal agricultural use or run-off periods, i.e. in spring and fall seasons.

## Drinking Water Guidelines

The Ministry of the Environment published a revised edition of "Ontario Drinking Water Objectives" in 1983.

The primary purpose of drinking water objectives is the protection of the health of the public consuming the water. Aesthetic considerations may also provide a basis for drinking water objectives, since the water should be pleasant to drink. The control of such aspects of water quality as hardness, corrosiveness, etc. is also important. The limits set are considered to outline the minimum requirements necessary to fulfill the above objectives, and may be either health-related or related to aesthetic and other considerations.

Because this survey covered such a large number of parameters, many of them did not have an ODWO. In order to be able to compare data results to health guidelines, it was necessary to refer to objectives and guidelines developed by other jurisdictions.

The footnotes to Table 1 indicate the sources and derivation of the various guidelines.

**TABLE 1: DRINKING WATER SURVEILLANCE PROGRAM, PARAMETERS ANALYSED**

| PARAMETER CATEGORY | Objective Guideline (1) | Detection Limit | PARAMETER CATEGORY | Objective Guideline (1) | Detection Limit |
|---|---|---|---|---|---|
| CHEMISTRY: | | | Barium | 1 mg/L | 0.001 mg/L |
| Conductivity | - | 0.01 UMHO/CM | Boron | 5 mg/L | 0.02 mg/L |
| | | | Beryllium | - | 0.001 mg/L |
| Hardness | - | 0.5 mg/L | Cyanide | 0.2 mg/L | 0.001 mg/L |
| Calcium | - | 0.1 mg/L | Cadmium | 0.005 mg/L | 0.0003 mg/L |
| Magnesium | - | 0.05 mg/L | Cobalt | - | 0.001 mg/L |
| Sodium | - | 0.1 mg/L | Chromium | 0.05 mg/L | 0.001 mg/L |
| Alkalinity | | 0.2 mg/L | Copper | 1 mg/L | 0.001 mg/L |
| pH | - | - | Mercury | 1 µg/L | 0.01 µg/L |
| Fluoride | 2.4 mg/L | 0.01 mg/L | Molybdenum | - | 0.001 mg/L |
| Chloride | 250 mg/L | 0.2 mg/L | Nickel | - | 0.002 mg/L |
| Residue total (solids) | - | 1 mg/L | Lead | 0.05 mg/L | 0.003 mg/L |
| Turbidity | 1 FTU | .01 FTU | Selenium | 0.01 mg/L | 0.001 mg/L |
| Phosphorus | - | 0.002 mg/L | Strontium | - | 0.001 mg/L |
| Phosphates | - | 0.0005 mg/L | Vanadium | - | 0.001 mg/L |
| Nitrogen Total Kjeldahl | 0.15 mg/L* | 0.1 mg/L | Zinc | 5 mg/L | 0.001 mg/L |
| Ammonium Total | - | 0.05 mg/L | | | |
| Colour | 5 TCU | 0.5 TCU | BACTERIOLOGY (RAW ONLY): | | |
| Nitrates Total | 10 mg/L as N | .05 mg/L | Total Coliform MF | - | 0 |
| | | | Total Coliform MF BKGD | - | 0 |
| Nitrite | 1 mg/L as N | 0.0005 mg/L | Fecal Coliform | - | 0 |
| | | | Standard Plate Count MF | - | 0 |
| METALS: | | | (TREATED ONLY): | | |
| Uranium | 0.02 mg/L(t) | 0.002 mg/L‡ | Present/Absent (P/A) Test | Absent | Absent |
| Iron | 0.3 mg/L | 0.002 mg/L | Total Coliform MF BKGD | - | 0 |
| Manganese | 0.05 mg/L | 0.001 mg/L | Fecal Coliform | 0 | 0 |
| Aluminum | - | 0.003 mg/L | Standard Plate Count MF | <500 orgs/mL | 0 |
| Arsenic | 0.05 mg/L | 0.001 mg/L | | | |

TABLE 1: DRINKING WATER SURVEILLANCE PROGRAM, PARAMETERS ANALYSED (cont'd)

| PARAMETER CATEGORY | Objective Guideline (1) | Detection Limit | PARAMETER CATEGORY | Objective Guideline (1) | Detection Limit |
|---|---|---|---|---|---|
| VOLATILES: | | | CHLOROAROMATICS: | | |
| 1,1-Dichloroethylene | 0.3 µg/L(h) | 1.0 µg/l | Hexachloroethane | 19000 ng/L(e) | 1 ng/L |
| Dichloromethane | 40 µg/L(c) | 5 µg/L | 1,3,5-Trichlorobenzene | 10000 ng/L(y) | 5 ng/L |
| TRS-1,2-Dichloroethylene | - | 1 µg/L | 1,2,4-Trichlorobenzene | 15000 ng/L(y) | 5 ng/L |
| 1,1-Dichloroethane | - | 1 µg/L | Hexachlorobutadiene | 4500 ng/L(e) | 1 ng/L |
| Chloroform | 350 µg/L++ | 1 µg/L | 1,2,3-Trichlorobenzene | 10000 ng/L(y) | 5 ng/L |
| 1,1,1-Trichloroethane | 1000 µg/L(c) | 1 µg/L | 2,4,5-Trichlorotoluene | - | 5 ng/L |
| 1,2-Dichloroethane | 10 µg/L(h) | 1 µg/L | 2,3,6-Trichlorotoluene | - | 5 ng/L |
| Carbon Tetrachloride | 3 µg/L(h) | 1 µg/L | 1,2,3,5-Tetrachloro-benzene | - | 1 ng/L |
| Benzene | 10 µg/L(h) | 1 µg/L | 1,2,4,5-Tetrachloro-benzene | 38000 ng/L(e) | 1 ng/L |
| 1,2-Dichloropropane | - | 1 µg/L | 2,6,A-Trichlorotoluene | - | 5 ng/L |
| Trichloroethylene | 30 µg/L(h) | 1 µg/L | 1,2,3,4-Tetrachloro-benzene | - | 1 ng/L |
| Dichlorobromomethane | 350 µg/L++ | 1 µg/L | Pentachlorobenzene | 74000 ng/L(e) | 1 ng/L |
| Toluene | 100 µg/L(c) | 1 µg/L | Total PCB's | 3000 ng/L(t) | 20 ng/L |
| 1,1,2-Trichloroethane | 6 µg/L(e) | 1 µg/L | | | |
| Chlorodibromomethane | 350 µg/L++ | 1 µg/L | PESTICIDES: | | |
| Tetrachloroethylene | 10 µg/L(h) | 1 µg/L | Hexachlorobenzene | 10 ng/L(h) | 1 ng/L |
| Chlorobenzene | 100-300 ng/L(h)* | 1 ng/L | Heptachlor | 3000 ng/L+++ | 1 ng/L |
| Trifluorochlorotoluene | - | 1 µg/L | Aldrin | 700 ng/L** | 1 ng/L |
| Ethylbenzene | 1400 µg/L(e) | 1 µg/L | PP-DDE | d | 1 ng/L |
| Ethylene Dibromide | 0.02 µg/L(x) | 1 µg/L | Mirex | - | 5 ng/L |
| P-Xylene | 620 µg/L(c) | 1 µg/L | Alpha BHC | 700 ng/L(c) | 1 ng/L |
| M-Xylene | 620 µg/L(c) | 1 µg/L | Beta BHC | 300 ng/L(c) | 1 ng/L |
| O-Xylene | 620 µg/L(c) | 1 µg/L | Gamma BHC (Lindane) | 4000 ng/L | 1 ng/L |
| Total Trihalomethanes | 350 µg/L++ | 3 µg/L | Alpha Chlordane | 7000 ng/L*** | 2 ng/L |
| Bromoform | 350 µg/L++ | 1 µg/L | Gamma Chlordane | 7000 ng/L*** | 2 ng/L |
| 1,1,2,2-Tetrachloroethane | 1.7 µg/L(e) | 1 µg/L | Oxychlordane | - | 2 ng/L |
| 1,4-Dichlorobenzene | 400 µg/L(e) | 1 µg/L | | | |
| 1,3-Dichlorobenzene | 400 µg/L(e) | 1 µg/L | | | |
| 1,2-Dichlorobenzene | 400 µg/L(e) | 1 µg/L | | | |

**TABLE 1: DRINKING WATER SURVEILLANCE PROGRAM, PARAMETERS ANALYSED (cont'd)**

| PARAMETER CATEGORY | Objective Guideline (1) | Detection Limit | PARAMETER CATEGORY | Objective Guideline (1) | Detection Limit |
|---|---|---|---|---|---|
| Pesticides (cont'd) | | | | | |
| OP-DDT | 30000 ng/L(d) | 5 ng/L | | | |
| PP-DDD | d | 5 ng/L | | | |
| PP-DDT | d | 5 ng/L | | | |
| Methoxychlor | 100000 ng/L | 5 ng/L | | | |
| Heptachlor Epoxide | 3000 ng/L+++ | 1 ng/L | | | |
| Endosulfan 1 | 74000 ng/L(ea) | 2 ng/L | | | |
| Dieldrin | 700 ng/L** | 2 ng/L | | | |
| Endrin | 200 ng/L | 4 ng/L | | | |
| Endosulfan 2 | 74000 ng/L(ea) | 4 ng/L | | | |
| Endosulfan Sulphate | - | 4 ng/L | | | |
| Octachlorostyrene | - | 1 ng/L | | | |
| Toxaphene | 5000 ng/L | PA(xx) | | | |

**Footnotes:**

(l) = Ontario Drinking Water Objectives (ODWO) for drinking water, unless noted.

(t) = ODWO Interim maximum acceptable concentration (IMAC) for drinking water.

(c) = California State Department of Health Action Level for drinking water.

(d) = ODWO for DDT (contains other isomers such as OPDDT and PPDDT).

(e) = US EPA ambient guideline; guideline levels when it is assumed that untreated water and fish and shellfish are consumed from the same body of water.

(ea) = United States Environmental Protection Agency (US EPA) ambient level for endosulfan (contains other isomers).

(h) = World Health Organization (WHO) guideline for drinking water.

(h)* = World Health Organization (WHO) Odour Threshold for drinking water.

(x) = State of Florida, maximum contaminant level for drinking water.

(xx) = the presence of toxaphene is detected in scan used; positive samples would be quantified by special additional analysis.

(y) = New York State (Taste and Odour) proposed drinking water guideline.

++ = total Trihalomethanes.

+++ = combined total; Heptachlor and Heptachlor Epoxide.

* = total Kjeldahl Nitrogen minus Ammonia Nitrogen.

** = total of Aldrin and Dieldrin.

*** = Chlordane is a mixture of alpha and gamma isomers.

‡ = Analysis changed to mass spectrometry method in mid-1986, detection limit 0.0001 mg/L.

**TABLE 1A: DRINKING WATER SURVEILLANCE PROGRAM SPECIAL PESTICIDES**

Dicamba
2,4-D
2,4-DB
2,4-DP
2,4,5-T
Silvex (2,4,5-TP)
Picloram
2,4,6-Trichlorophenol
2,4,5-Trichlorophenol
2,3,4-Trichlorophenol
2,3,5,6-Tetrachlorophenol
2,3,4,5-Tetrachlorophenol
Pentachlorophenol
Diazinon
Dichlorvos
Dursban
Ethion
Guthion
Malathion
Mevinphos
Methyl Parathion
Methyl Trithion
Parathion
Phorate (Thimet)
Reldan
Ronnel
Carbofuran
Propoxur
IPC
Aminocarb
CIPC
Eptam
Benonyl
Bux
Diallate
Sevin
Sutan
Propazine
Atrazine
Simazine
Sencor (metribuzin)
Bladex (Cyanazine)
Prometone
Ametryne
Prometryne
Atratone
Alachlor
Metolachlor

## RESULTS AND DISCUSSION

The parameters analyzed fall into several categories: physical parameters and general chemistry (chemistry), bacterial parameters, metals, and organic substances including volatile and chloroaromatic substances and pesticides. Many of the substances analyzed for are naturally-occurring or treatment by-products.

The results of analysis of raw and treated water samples are shown in Tables 2 and 3. Table 2 shows the categories of parameters analyzed, as well as the total number of analyses which were completed in each category for both raw and treated water samples and the total number of positive results which were obtained. Table 3 lists the sampling dates and the numerical values for each parameter for which analysis produced a positive (quantifiable) result.

The Niagara Falls Water Treatment Plant was sampled 15 times in 1986.

### (a) Non Organic Substances

There are 419 positive results of 531 reported analyses for physical parameters, such as pH and temperature and general chemistry tests. The results of these tests are used as an indication of the analytical validity and integrity of the samples, the general characteristics of the water, and as a guide to making an assessment of the treatment process; they may also indicate whether any changes occur during the time elapsing between sampling and actual analysis. Organic nitrogen exceeded the aesthetic ODWO in eight treated water samples; levels of organic nitrogen above the limit can result in taste and odour problems.

Positive results were obtained for 73 analyses for bacterial parameters out of a total number reported of 118. These bacterial tests include those for species of paramount importance from a public health point of view, and those which assess the general bacteriological quality and characteristics of the water; by this means, a measure is obtained of the overall efficiency of water treatment processes. Positive results were obtained in treated water samples for standard plate count (a measure of the total number of bacteria in a water sample) with the highest count at 166 organisms per mL; the ODWO recommend that treated water not exceed 500 organisms per mL for standard plate count. A further positive microbiological result was obtained when 1 total coliform per 100 mL occurred in treated water on September 8, 1986. The ODWO for "poor water quality" states "where total coliform bacteria are present at levels less than 5 organisms per 100 mL, they should not occur in more than 25% of the samples in a single submission, nor in successive submissions from the same sample site". Therefore, no exceedence of the ODWO occurred.

Analyses of 642 tests for metals in the water samples were reported; of these 312 were positive results. Metals can occur naturally and most are generally regarded as being ubiquitous. However, some may be present in water as a result of industrial or other discharges. A small number of metals have public health significance.

Of those parameters discussed above for which there are ODWO, none exceeded the Objectives except for organic nitrogen. Nor did the levels exceed any guidelines for drinking water set by other

jurisdictions, such as the U.S. Environmental Protection Agency (US EPA), the World Health Organization (WHO) and Health & Welfare, Canada (H&W, Canada). Furthermore, the results of these analyses are consistent with those obtained in other areas of the Great Lakes.

(b) Organic Substances

Of a total of 837 analyses for volatile organic compounds, 60 treated water samples showed positive results, all due to the presence of trihalomethanes.

Trihalomethanes (THMs) are acknowledged to be produced during the water treatment process and will almost always only occur in treated waters. Trihalomethanes are comprised mainly of chloroform, chlorodibromomethane and dichlorobromomethane with bromoform occurring occasionally. Results are reported for the individual compounds as well as for their sum, which is expressed as total trihalomethanes (total THM). The ODWO for total THM is 350 ug/L; this level was not exceeded in any of the water samples included in this report, the highest level recorded being 48 ug/L on August 11, 1986.

One hundred and thirty eight (138) tests were carried out for twenty three different pesticides; none was found above trace levels in treated water. PP-DDE was found in the raw water at 12 ng/L on July 29, 1986. This compound was not detected in any treated water samples. Additional pesticides (propazine, atrazine, simazine, Sencor, Bladex, prometone, ametryne and prometryne) were analyzed for monthly. Atratone was added to this group on

May 12, 1986. Alachlor and metolachlor were added to it on July 14, 1986. None of these compounds was found in raw or treated water.

Special pesticides (dicamba, 2,4-DP, 2,4-D, Silvex, 2,4,5-T, 2,4-DB and picloram) were analyzed on three occasions (April 14, 1986; August 11, 1986 and September 8, 1986); none was found.

Chlorophenolic compounds were analyzed for in the raw and treated water obtained on April 14, 1986; August 11, 1986 and September 8, 1986; there were no positive results.

No chloroaromatic compounds were found.

## CONCLUSIONS

The data reveal that for metals, inorganic ions, and bacterial parameters, raw water values are frequently in the detectable range; levels of metals and inorganics are also found in treated water. The levels of metals, inorganic compounds, and bacteria are consistent with those found in other water supplies in the province.

For the organic compounds, most are below detection levels, even though the most sophisticated equipment available was employed in the chemical analysis.

ODWO have not been established for some of the compounds analysed; for these few compounds, use was made of appropriate guidelines set by other agencies, such as the World Health Organization, the US Environmental Protection Agency, Health and Welfare Canada or other agencies. None of these guidelines was exceeded.

The treated water at the supply did not exceed any known health-related guidelines for organic substances applicable to drinking water.

## TABLE 2

## NIAGARA FALLS WATER TREATMENT PLANT

| | PARAMETER GROUP | TYPE OF SAMPLE RAW | TREATED |
|---|---|---|---|
| 1. | GENERAL CHEMISTRY | | |
| | - Total samples | 261 | 270 |
| | - Total positives | 229 | 190 |
| 2. | METALS | | |
| | - Total samples | 321 | 321 |
| | - Total positives | 162 | 150 |
| 3. | BACTERIOLOGY | | |
| | - Total samples | 58 | 60 |
| | - Total positives | 56 | 17 |
| 4. | VOLATILES | | |
| | - Total samples | 419 | 418 |
| | - Total positives | 0 | 60 |
| 5. | PESTICIDES | | |
| | - Total samples | 356 | 356 |
| | - Total positives | 1 | 0 |
| 6. | CHLOROAROMATICS | | |
| | - Total samples | 195 | 195 |
| | - Total positives | 0 | 0 |
| 7. | CHLOROPHENOLS | | |
| | - Total samples | 18 | 17 |
| | - Total positives | 0 | 0 |
| 8. | SPECIAL PESTICIDES | | |
| | - Total samples | 160 | 160 |
| | - Total positives | 0 | 0 |

# Table 3

NIAGARA FALLS WATER TREATMENT PLANT DWSP RESULTS

02/17/87

| PARAMETERS | UNITS | | SAMPLE DATE 86/01/13 | 86/02/10 | 86/03/10 | 86/03/14 | 86/04/14 | 86/05/12 | 86/06/09 | 86/07/14 | 86/07/29 | 86/08/11 | 86/09/08 | 86/09/29 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ALKALINITY | MG/L-CAC | R | 102.20 | 99.20 | 101.60 | 102.50 | 95.700 | 98.700 | 98.900 | 97.700 | 96.800 | 96.200 | 97.900 | 98.100 |
| | | T | 92.800 | 92.800 | 94.000 | 96.900 | 88.800 | 92.300 | 85.300 | 94.600 | 93.400 | 90.900 | 91.600 | 92.100 |
| ALUMINUM | MG/L-AL | R | .280 | .110 | .380 | .170 | .011 | .059 | .009 | .033 | .039 | .083 | .051 | .070 |
| | | T | .042 | .046 | .065 | .073 | .130 | .120 | .046 | .310 | .440 | .310 | .230 | .220 |
| ARSENIC | MG/L-AS | R | .001 | | | | | | | | | .001 | | |
| | | T | | | | | | | | | | | | |
| BARIUM | MG/L-BA | R | .020 | .018 | .019 | .019 | .019 | .019 | .021 | .019 | .020 | .021 | .021 | .021 |
| | | T | .017 | .016 | .017 | .018 | .018 | .019 | .020 | .019 | .019 | .019 | .020 | .021 |
| BORON | MG/L-BO | R | .070 | | .020 | | | .040 | .030 | .020 | | .020 | .030 | |
| | | T | .080 | | | .020 | | .030 | | .030 | | .020 | .040 | .030 |
| CALCIUM | MG/L-CA | R | 38.50 | 37.000 | | 36.000 | 34.800 | 34.800 | 37.700 | 35.200 | 34.000 | 34.500 | 35.700 | 37.400 |
| | | T | 38.50 | 37.500 | 36.500 | 36.500 | 35.400 | 35.500 | 37.700 | 35.300 | 34.000 | 34.600 | 35.100 | 37.900 |
| CADMIUM | UG/L-CD | R | .400 | .300 | | | .300 | | | | | | | |
| | | T | | | | | | | | | | | | |
| CHLORIDE | MG/L-CL | R | 15.400 | 14.800 | | 17.300 | 15.000 | 15.550 | 15.000 | 14.500 | 15.000 | 14.500 | 15.000 | 15.000 |
| | | T | 16.400 | 15.800 | 18.300 | 17.700 | 15.600 | 16.300 | 16.000 | 16.000 | 16.000 | 16.000 | 16.000 | 17.000 |
| COLOUR | HZU | R | 15.000 | 6.000 | | 8.500 | 2.500 | 3.000 | 2.500 | 3.500 | 4.000 | 2.500 | 2.500 | 2.500 |
| | | T | | | 3.000 | | | | | | | | | |
| CONDUCTIVITY | UMHO/CM | R | 295.00 | 295.00 | 305.00 | 300.00 | 279.00 | 295.00 | 297.00 | 274.00 | 276.00 | 275.00 | 280.00 | 285.00 |
| | | T | 304.00 | 297.00 | 301.00 | 307.00 | 280.00 | 289.00 | 296.00 | 277.00 | 279.00 | 280.00 | 284.00 | 290.00 |
| CHROMIUM | MG/L-CR | R | .002 | .003 | .002 | .002 | | | | | | | | |
| | | T | .001 | .002 | .002 | .001 | | | | | | .001 | | .001 |
| COPPER | MG/L-CU | R | .004 | .047 | .010 | .007 | .007 | .002 | .001 | .001 | .001 | .001 | | .001 |
| | | T | .003 | .004 | .006 | .004 | | | .001 | | | | | .001 |
| COBALT | MG/L-CO | R | .001 | | | | | | | | | | | |
| | | T | | | | | | | | | | | | |

## Table 3 (cont'd)

NIAGARA FALLS WATER TREATMENT PLANT DWSP RESULTS 02/17/87

| PARAMETERS | UNITS | | SAMPLE DATE 86/01/13 | 86/02/10 | 86/03/10 | 86/03/14 | 86/04/14 | 86/05/12 | 86/06/09 | 86/07/14 | 86/07/29 | 86/08/11 | 86/09/08 | 86/09/29 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FECAL COLIFORM MEMBRANE FILTRATION | CT/100ML | R | 36.00 | 7.000 | 58.000 | 70.000 | 6.000 | 102.00 | 2.000 | 2.000 | 8.000 | 45.000 A3C | 4.000 | 29.000 |
| | | T | | | | | | | | | | | | |
| IRON | MG/L-FE | R | .260 | .100 | .340 | .120 | .031 | .043 | .061 | .037 | .030 | .098 | .065 | .056 |
| | | T | .004 | .004 | .003 | .004 | .005 | .002 | .005 | .003 | .007 | .014 | .014 | .007 |
| FLUORIDE | MG/L-F | R | .130 | .120 | | .130 | .110 | .120 | .150 | .140 | .120 | .120 | .130 | .110 |
| | | T | .100 | .120 | .140 | .110 | .100 | .120 | .090 | .130 | .140 | .120 | .120 | .110 |
| FIELD COMBINED CHLORINE RESIDUAL | MG/L-CL | R | | | | | | | | | | | | |
| | | T | | .100 | .100 | .080 | 1.180 | .050 | .120 | .150 | .100 | .100 | .150 | .200 |
| FIELD FREE CHLORINE RESIDUAL | MG/L-CL | R | | | | | | | | | | | | |
| | | T | | .500 | .270 | .260 | .300 | .100 | .330 | .300 | .300 | .350 | .400 | .500 |
| FIELD TOTAL CHLORINE RESIDUAL | MG/L-CL | R | | | | | | | | | | | | |
| | | T | | .600 | .320 | .340 | .480 | .150 | .450 | .450 | .400 | .450 | .550 | .700 |
| FIELD PH | | R | | 7.800 | 7.800 | 8.000 | 7.000 | 7.500 | 7.900 | 8.000 | 8.400 | 8.400 | 8.400 | 8.000 |
| | | T | | 7.500 | 7.500 | 7.500 | 7.600 | 7.500 | 7.400 | 7.800 | 7.800 | 7.800 | 7.800 | 7.500 |
| FIELD TEMPERATURE | DEG.C | R | | | .600 | 1.000 | 1.000 | 9.000 | 13.000 | 20.500 | 24.000 | 22.500 | 20.000 | 19.000 |
| | | T | | .500 | .600 | 1.000 | .200 | 10.000 | 14.500 | 20.000 | 23.000 | 22.900 | 20.000 | 18.500 |
| FIELD TURBIDITY | FTU | R | | 3.100 | 6.600 | 3.900 | 1.100 | 1.800 | 1.300 | 3.000 | 1.100 | 2.400 | 2.400 | 2.000 |
| | | T | | .250 | .330 | .460 | .360 | .310 | .130 | .190 | .400 | .220 | .140 | .240 |
| HARDNESS | MG/L-CAC | R | 131.900 | 129.00 | | 128.00 | 119.50 | 120.00 | 130.00 | 121.50 | 117.50 | 120.00 | 123.50 | 127.50 |
| | | T | 131.900 | 130.00 | 127.00 | 129.00 | 121.00 | 121.50 | 129.50 | 122.00 | 117.50 | 120.50 | 120.80 | 128.50 |
| STANDARD PLATE COUNT MEMBRANE FILT. | CT/ML | R | 410.00 | 950.00 | 720.00 | 65.000 | 2000.0 | | | | | | 350.00 | |
| | | T | | 1.000 | 3.000 | | 1.000 | 2.000 | 2.000 | 1.000 | 2.000 | 5.000 | 2.000 | |

## Table 3 (cont'd)

NIAGARA FALLS WATER TREATMENT PLANT DWSP RESULTS 02/17/87

| PARAMETERS | UNITS | | SAMPLE DATE | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 86/01/13 | 86/02/10 | 86/03/10 | 86/03/14 | 86/04/14 | 86/05/12 | 86/06/09 | 86/07/14 | 86/07/29 | 86/09/11 | 86/09/08 | 86/09/29 |
| MERCURY | UG/L-HG | R | .010 | .040 | .020 | | .020 | | .020 | .020 | .010 | .020 | .040 | |
| | | T | .010 | .020 | | .010 | .010 | .010 | .020 | .020 | | .020 | .030 | |
| MAGNESIUM | MG/L-MG | R | 8.700 | 8.800 | | 9.200 | 7.900 | 8.050 | 8.650 | 8.150 | 7.900 | 8.250 | 8.300 | 8.200 |
| | | T | 8.700 | 8.700 | 8.700 | 9.100 | 7.900 | 8.000 | 8.550 | 8.250 | 7.900 | 8.250 | 8.100 | 8.300 |
| MANGANESE | MG/L-MN | R | .009 | .003 | .007 | .003 | .001 | .002 | .003 | .004 | .001 | .004 | .003 | .003 |
| | | T | .002 | .001 | .002 | .002 | | .001 | .001 | .001 | .001 | .001 | .001 | .001 |
| MOLYBDENUM | MG/L-MB | R | | .001 | | | .001 | .001 | .001 | | .001 | .001 | .001 | .001 |
| | | T | | .001 | .001 | | .001 | .001 | .001 | | | .001 | | .001 |
| SODIUM | MG/L-NA | R | 9.000 | 9.000 | | 9.000 | 8.400 | 10.000 | 9.100 | 8.400 | 9.900 | 8.300 | 8.800 | 8.400 |
| | | T | 9.000 | 9.000 | 9.500 | 9.000 | 8.400 | 10.100 | 9.100 | 8.600 | 9.900 | 8.200 | 8.300 | 8.500 |
| NICKEL | MG/L-NI | R | .002 | .002 | .002 | .001 | .002 | | .002 | | | .002 | | |
| | | T | .009 | .001 | .001 | .001 | | | .002 | | | | | .004 |
| AMMONIUM TOTAL | MG/L-N | R | | | | .028 | .022 | .030 | .032 | .030 | .020 | | .012 | .014 |
| | | T | | .036 | .010 | .008 | | .008 | | .030 | .012 | | .018 | .012 |
| NITRITE | MG/L-N | R | .005 | | | .004 | .003 | .004 | .010 | .033 | .004 | .005 | .006 | .007 |
| | | T | | .002 | | | .003 | | | .007 | | .005 | | .004 |
| TOTAL NITRATES | MG/L-N | R | .300 | .290 | | .345 | .250 | .275 | .245 | .280 | .245 | .250 | .160 | .095 |
| | | T | | .275 | .355 | .355 | .270 | .280 | .240 | .240 | .240 | .200 | .150 | .100 |
| NITROGEN TOTAL KJELDAHL | MG/L-N | R | .220 | .200 | .210 | .240 | .120 | .250 | .270 | .290 | .280 | .250 | .220 | .280 |
| | | T | .150 | .130 | .140 | .150 | | .160 | .150 | .190 | .240 | .200 | .180 | .170 |
| PPDDE | NG/L | R | | | | | | | | | 12.000 | | | |
| | | T | | | | | | | | | | | | |
| LEAD | MG/L-PB | R | | | | | .005 | | | | | | | |
| | | T | | | | | .005 | | | | | | | .003 |

## Table 3 (cont'd)

NIAGARA FALLS WATER TREATMENT PLANT DWSP RESULTS

02/17/87

| PARAMETERS | UNITS | | SAMPLE DATE | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 86/01/13 | 86/02/10 | 86/03/10 | 86/03/14 | 86/04/14 | 86/05/12 | 86/06/09 | 86/07/14 | 86/07/29 | 86/08/11 | 86/09/08 | 86/09/29 |
| PH | | R | 8.100 | 8.120 | 8.180 | 8.310 | 8.330 | 8.350 | 8.420 | 8.340 | 8.300 | 8.300 | 8.260 | 8.340 |
| | | T | 7.44 | 7.720 | 8.160 | 8.250 | 8.080 | 8.130 | 8.050 | 8.310 | 8.110 | 8.140 | 8.150 | 8.230 |
| PHOSPHORUS FIL REACT | MG/L-P | R | .012 | .008 | | 012 | 004 | 002 | 004 | | | 003 | | |
| | | T | | | | | | | | | | | | |
| PHOSPHORUS TOTAL | MG/L-P | R | .021 | .020 | 016 | 024 | 005 | 012 | 010 | .021 | 008 | 013 | 015 | 008 |
| | | T | | | | 006 | 008 | | | | | | | |
| TOTAL SOLIDS | MG/L | R | 192.00 CRO | 192.00 CRO | 198.00 CRO | 190.00 CRO | 181.00 CRO | 185.00 CRO | 187.00 CRO | 227.00 | 179.00 CRO | 175.00 | 182.00 CRO | 186.00 |
| | | T | 198.00 CRO | 193.00 CRO | 196.00 CRO | 196.00 CRO | 182.00 CRO | 188.00 CRO | 192.00 CRO | 180.00 CRO | 181.00 CRO | 189.00 CRO | 185.00 CRO | [illegible] |
| STRONTIUM | [illegible]-SR | R | .160 | .150 | .170 | 170 | 150 | 140 | 150 | 140 | 150 | 150 | 150 | 150 |
| | | T | .150 | .140 | .170 | 180 | 150 | 140 | 170 | 140 | 140 | 150 | 150 | 150 |
| TOTAL COLIFORM MEMBRANE FILTRATION | CT/100ML | R | 300.00 | 104.00 A3C | 4300.0 | 700.00 | 99.000 A3C | 4400.0 | 5.000 A3C | 34.000 A3C | 12.000 A3C | 400.00 A3C | 10.000 A3C | 110.00 A3C |
| | | T | | | | | | | | | | | 1.000 | |
| TOTAL COLIFORM BACKGROUND MF | CT/100ML | R | 4600.0 | 3100.0 | 4700.0 | 2000.0 | 25000 | 23000 | 12.000 | 160000 | | 50000.0 | | 9800.0 |
| | | T | | 1.000 | | | | | | 4.000 | | | | 2.000 |
| TURBIDITY | FTU | R | 14.200 | 3.400 | 4.300 | 4.400 | 1.200 | 3.300 | 1.100 | 2.700 | 1.380 | 1.210 | 2.200 | 2.900 |
| | | T | | | | | | | | | | | | |
| URANIUM | UG/L-U | R | | | | | | | | | 375 | 390 | 340 | |
| | | T | | | | | | | | | 405 | 310 | 300 | 300 |
| VANADIUM | MG/L-V | R | | .002 | .002 | 003 | | | | | | 001 | | |
| | | T | | .001 | .002 | 001 | | | | | | | | |
| CHLOROFORM | UG/L | R | | | | | | | | | | | | |
| | | T | 14.000 | 12.000 | 18.000 | 13.000 | 10.000 | 17.000 | 15.000 | 16.000 | 22.000 | 27.000 | 18.000 | 26.000 |

## Table 3 (cont'd)

NIAGARA FALLS WATER TREATMENT PLANT DWSP RESULTS

02/11/9?

| PARAMETERS | UNITS | | SAMPLE DATE | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 86/01/13 | 86/02/10 | 86/03/10 | 86/03/14 | 86/04/14 | 86/05/12 | 86/06/09 | 86/07/14 | 86/07/29 | 86/08/11 | 86/09/08 | 86/09 |
| DICHLOROBROMOMETHANE | UG/L | R | | | | | | | | | | | | |
| | | T | 11.000 | 9.000 | 11.000 | 9.000 | 8.000 | 11.000 | 10.000 | 9.000 | 11.000 | 14.000 | 10.000 | |
| CHLORODIBROMOMETHANE | UG/L | R | | | | | | | | | | | | |
| | | T | 13.000 | 11.000 | 13.000 | 10.000 | 7.000 | 5.000 | 5.000 | 5.000 | 5.000 | 7.000 | 5.000 | 2.000 |
| BROMOFORM | UG/L | R | | | | | | | | | | | | |
| | | T | | | | | 2.000 | | | | | | | |
| TOTAL TRIHALOMETHANES | UG/L | R | | | | | | | | | | | | |
| | | T | 38.000 | 32.000 | 42.000 | 32.000 | 27.000 | 33.000 | 30.000 | 30.000 | 38.000 | 48.000 | 33.000 | 40.000 |
| ZINC | MG/L-ZN | R | | .023 | .011 | .005 | .012 | .002 | .004 | | .002 | | .028 | .007 |
| | | T | | .003 | .003 | .005 | .013 | .001 | .005 | | .002 | .001 | .032 | .014 |

## Table 3 (cont'd)

NIAGARA FALLS WATER TREATMENT PLANT DWSP RESULTS 02/17/87

| PARAMETERS | UNITS | | SAMPLE DATE 86/10/15 | 86/11/17 | 86/12/15 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ALKALINITY | MG/L-CAC | R | 100.70 | 103.90 | 102.20 | | | | | | | | |
| | | T | 95.300 | 97.900 | 95.300 | | | | | | | | |
| ALUMINUM | MG/L-AL | R | .068 | .110 | .250 | | | | | | | | |
| | | T | .210 | .083 | .052 | | | | | | | | |
| BARIUM | MG/L-BA | R | .020 | .021 | .021 | | | | | | | | |
| | | T | .019 | .020 | .018 | | | | | | | | |
| BORON | MG/L-BO | R | .030 | .030 | .020 | | | | | | | | |
| | | T | .030 | .030 | .020 | | | | | | | | |
| CALCIUM | MG/L-CA | R | 37.000 | 37.300 | 36.500 | | | | | | | | |
| | | T | 37.500 | 37.300 | 37.300 | | | | | | | | |
| CHLORIDE | MG/L-CL | R | 15.500 | 15.000 | 15.000 | | | | | | | | |
| | | T | 16.000 | 16.500 | 16.000 | | | | | | | | |
| COLOUR | HZU | R | 3.000 | 3.000 | 4.000 | | | | | | | | |
| | | T | | | | | | | | | | | |
| CONDUCTIVITY | UMHO/CM | R | 290.00 | 292.00 | 293.00 | | | | | | | | |
| | | T | 293.00 | 297.00 | 296.00 | | | | | | | | |
| CHROMIUM | MG/L-CR | R | | | .001 | | | | | | | | |
| | | T | | | | | | | | | | | |
| COPPER | MG/L-CU | R | .001 | .001 | .002 | | | | | | | | |
| | | T | .001 | | .001 | | | | | | | | |
| FECAL COLIFORM MEMBRANE FILTRATION | CT/100ML | R | 3.000 | | 119.00 | | | | | | | | |
| | | T | | | | | | | | | | | |

## Table 3 (cont'd)

NIAGARA FALLS WATER TREATMENT PLANT DWSP RESULTS

02/17/87

| PARAMETERS | UNITS | | SAMPLE DATE 86/10/15 | 86/11/17 | 86/12/15 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IRON | MG/L-FE | R | .056 | .150 | .450 | | | | | | | | | |
| | | T | .003 | .002 | .002 | | | | | | | | | |
| FLUORIDE | MG/L-F | R | .130 | .110 | .120 | | | | | | | | | |
| | | T | .110 | .100 | .110 | | | | | | | | | |
| FIELD COMBINED CHLORINE RESIDUAL | MG/L-CL | R | | | | | | | | | | | | |
| | | T | .130 | .300 | .300 | | | | | | | | | |
| FIELD FREE CHLORINE RESIDUAL | MG/L-CL | R | | | | | | | | | | | | |
| | | T | .410 | .440 | .500 | | | | | | | | | |
| FIELD TOTAL CHLORINE RESIDUAL | MG/L-CL | R | | | | | | | | | | | | |
| | | T | .540 | .740 | .800 | | | | | | | | | |
| FIELD PH | | R | 8.000 | 8.000 | 7.900 | | | | | | | | | |
| | | T | 7.800 | 8.000 | 7.500 | | | | | | | | | |
| FIELD TEMPERATURE | DEG.C | R | 15.000 | 10.000 | 4.500 | | | | | | | | | |
| | | T | 15.500 | 7.900 | 4.600 | | | | | | | | | |
| FIELD TURBIDITY | FTU | R | 1.700 | 5.500 | 18.900 | | | | | | | | | |
| | | T | .200 | .340 | .330 | | | | | | | | | |
| HARDNESS | MG/L-CAC | R | 126.00 | 129.00 | 125.00 | | | | | | | | | |
| | | T | 128.00 | 129.00 | 127.50 | | | | | | | | | |
| STANDARD PLATE COUNT MEMBRANE FILT. | CT/ML | R | | 73.000 | | | | | | | | | | |
| | | T | 4.000 | 93.000 | 166.00 | | | | | | | | | |
| MERCURY | UG/L-HG | R | .040 | .050 | .060 | | | | | | | | | |
| | | T | .040 | .060 | .070 | | | | | | | | | |
| MAGNESIUM | MG/L-MG | R | 8.200 | 8.700 | 8.300 | | | | | | | | | |
| | | T | 8.350 | 8.800 | 8.400 | | | | | | | | | |

## Table 3 (cont'd)

NIAGARA FALLS WATER TREATMENT PLANT DWSP RESULTS

02/17/87

| PARAMETERS | UNITS | | SAMPLE DATE 86/10/15 | 86/11/17 | 86/12/15 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MANGANESE | MG/L-MN | R | .003 | .006 | .023 | | | | | | | | | |
| | | T | .001 | .001 | .001 | | | | | | | | | |
| MOLYBDENUM | MG/L-MB | R | .001 | | | | | | | | | | | |
| | | T | .001 | .001 | .001 | | | | | | | | | |
| SODIUM | MG/L-NA | R | 8.600 | 8.800 | 8.900 | | | | | | | | | |
| | | T | 8.000 | 8.700 | 9.000 | | | | | | | | | |
| AMMONIUM TOTAL | MG/L-N | R | .014 | | | | | | | | | | | |
| | | T | .012 | .010 | | | | | | | | | | |
| NITRITE | MG/L-N | R | .032 | | .010 | | | | | | | | | |
| | | T | | | .006 | | | | | | | | | |
| TOTAL NITRATES | MG/L-N | R | .230 | .265 | .255 | | | | | | | | | |
| | | T | .180 | .215 | .240 | | | | | | | | | |
| NITROGEN TOTAL KJELDAHL | MG/L-N | R | .220 | .230 | .270 | | | | | | | | | |
| | | T | .210 | .260 | .120 | | | | | | | | | |
| PH | | R | 8.380 | 8.230 | 8.370 | | | | | | | | | |
| | | T | 8.220 | 7.930 | 8.230 | | | | | | | | | |
| PHOSPHORUS FIL REACT | MG/L-P | R | | .004 | .005 | | | | | | | | | |
| | | T | | | | | | | | | | | | |
| PHOSPHORUS TOTAL | MG/L-P | R | | .012 | .066 | | | | | | | | | |
| | | T | | | | | | | | | | | | |
| TOTAL SOLIDS | MG/L | R | 183.00 | 183.00 | 216.00 | | | | | | | | | |
| | | T | 190.00 CRO | 193.00 CRO | 167.00 | | | | | | | | | |

## Table 3 (cont'd)

NIAGARA FALLS WATER TREATMENT PLANT OWSP RESULTS

02/17/87

| PARAMETERS | UNITS | | SAMPLE DATE 86/10/15 | 86/11/17 | 86/12/15 |
|---|---|---|---|---|---|
| STRONTIUM | MG/L-SR | R | .150 | .160 | .150 |
| | | T | .140 | .160 | .140 |
| TOTAL COLIFORM MEMBRANE FILTRATION | CT/100ML | R | 97.000 A3C | | 1600.0 |
| | | T | | | |
| TOTAL COLIFORM BACKGROUND MF | CT/100ML | R | 7000.0 | 74.000 | 4000.0 |
| | | T | | | 1.000 |
| TURBIDITY | FTU | R | 2.100 | 5.500 | 26.000 |
| | | T | | 350 | .160 |
| URANIUM | UG/L-U | R | .320 | .360 | .440 |
| | | T | .340 | .270 | .290 |
| CHLOROFORM | UG/L | R | | | |
| | | T | 20.000 | 20.000 | 16.000 |
| DICHLOROBROMOMETHANE | UG/L | R | | | |
| | | T | 10.000 | 11.000 | 10.000 |
| CHLORODIBROMOMETHANE | UG/L | R | | | |
| | | T | 2.000 | 2.000 | 4.000 |
| TOTAL TRIHALOMETHANES | UG/L | R | | | |
| | | T | 32.000 | 33.000 | 30.000 |
| ZINC | MG/L-ZN | R | .001 | .001 | .007 |
| | | T | | | .004 |